

NON-PUBLIC?: N  
ACCESSION #: 9006260355  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Wolf Creek Generating Station PAGE: 1 OF 3

DOCKET NUMBER: 05000482

TITLE: Reactor Trip Caused By Steam Generator Atmospheric Valve  
Remaining Open  
EVENT DATE: 05/17/90 LER #: 90-012-00 REPORT DATE: 06/18/90

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 2 POWER LEVEL: 1

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION:  
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:  
NAME: Merlin G. Williams - Manager Plant Support

TELEPHONE: (316) 364-8831

COMPONENT FAILURE DESCRIPTION:  
CAUSE: X SYSTEM: SB COMPONENT: CNV MANUFACTURER: M120  
REPORTABLE NPRDS: Y

SUPPLEMENTAL REPORT EXPECTED: NO

#### ABSTRACT:

On May 17, 1990, at 2305 CDT, with the unit at 0.5 percent power, a Reactor trip signal, Main Turbine (TA-TRB) trip signal, Auxiliary Feedwater Actuation Signal (AFAS), Feedwater Isolation Signal (EWIS) and Steam Generator Blowdown and Sample Isolation Signal (SGBSIS) occurred as a result of a low-low water level in Steam Generator 'C'. Prior to this event, the unit had been taken off line and the steam generator atmospheric relief valves (ARV's) were being used to maintain Reactor Coolant System temperature. At approximately 2300 CDT, it was discovered that the valve was stuck open. Efforts to close the ARV from the Control Room unsuccessful, and operators were dispatched to manually isolate the valve. This valve was isolated at 2310 CDT, and plant conditions were stabilized.

During subsequent troubleshooting, a current-to-pneumatic converter in the ARV positioner circuitry was replaced. The ARV was verified to be operating properly and was restored to service at 0716 CDT on May 18, 1990. It is believed that the failure occurred as a result of a pressure regulating Fall in the air bleed off line of the converter being restricted from free movement. This condition caused the ARV to be in the open position.

END OF ABSTRACT

TEXT PAGE 2 OF 3

## INTRODUCTION

On May 17, 1990, at 2305 CDT, with the unit at 0.5 percent power, a Reactor trip signal, Main Turbine (TA-TRB) trip signal, Auxiliary Feedwater Actuation Signal (AFAS), Feedwater Isolation Signal (FWIS) and Steam Generator Blowdown and Sample Isolation Signal (SGBSIS) occurred as a result of a low-low water level in Steam Generator. This event is being reported pursuant to 10 CFR 50.73(a)(2)(iv) concerning unplanned actuations of the Reactor Protection System (RPS) and Engineered Safety Features (ESF) equipment.

## DESCRIPTION OF EVENT

On May 17, 1990, with the unit at approximately 90 percent power, a leak was discovered on the 'A' Feedwater Pump (SJ-P) seal return line to the Main Condenser (SG-COND). It was decided to break Main Condenser vacuum in order to repair the leak. Reactor power was reduced and the Main Turbine was taken off line at 2146 CDT. The motor-driven Startup Main Feedwater pump (SJ-P) was placed in service at 2217 CDT. At 2243 CDT, the main steamlines were isolated and reactor power was being maintained at approximately 0.5 percent (Mode 2 condition) by releasing steam through the steam generator atmospheric relief valves (ARVs) (SB-RV). Dilution of the Reactor Coolant System (AB) was in progress to maintain the reactor critical at the no load average temperature of 557 degrees Fahrenheit.

At approximately 2300 CDT, the Control Room operators noticed Reactor Coolant System temperature decreasing although the controls for ARV position were set such that the ARVs should have been almost closed. Investigation revealed that the indicator was indicating full open, although the controller demand position was almost fully closed. Reduced level and pressure in Steam Generator 'C' as well as indicated steam flow confirmed that the ARV was open. Attempts to close the valve using the controller were unsuccessful, and operators were dispatched to locally close the

manual isolation valve for the 'C' ARV. Instrumentation and Control (I&C) personnel were also dispatched to the area to provide assistance.

The Shift Supervisor ordered a manual Reactor trip because of degrading conditions, but before this action could be taken, an automatic Reactor trip occurred & at 2305 CDT as a result of level in Steam Generator 'C' reaching the low-low level trip setpoint of 23.5 percent. Occurring in conjunction with the Reactor trip were a Main Turbine trip signal, an AFAS, a FWIS, and a SGBSIS.

TEXT PAGE 3 OF 3

The Control Room operators confirmed that all RPS and ESF equipment had responded properly to the actuation signals. At approximately 2310 CDT, the 'C' ARV was isolated. I&C personnel had facilitated this effort by momentarily failing the valve closed by defeating the Air signal to the positioner.

A current-to-pneumatic converter SB-CNV! was replaced in the positioner circuitry. The was the confirmed to be operating properly and was returned to service at approximately 0716 CDT on May 18, 1990.

#### ROOT CAUSE AND CORRECTIVE: ACTIONS

During troubleshooting of the 'C' ARV, the current-to-pneumatic converter in the valve positioner was replaced. Efforts to recreate the mechanism by which the positioner output remained high while the controller input remained at zero unsuccessful. Although the root cause of the failure could not be positively determined, it is believed that a pressure regulating ball controlling the air bleed off from the position demanding signal may have become lodged in its housing causing the ARV to in a fixed open position. During disassembly of the converter, there was foreign material found which would have caused the pressure regulating ball to become lodged in its housing. However, clearing tolerance between the pressure regulating ball and its housing is very tight such that any irregularity could restrict free movement.

The current-to-pneumatic converter that failed was manufactured by Masoneilan International Incorporated, Model 8005A. This model converter is installed in eight other applications at Wolf Creek Generating Station. A review was conducted of the maintenance history of each converter. There was nothing in the maintenance history file to indicate a history of problems with the converters. Therefore, this is considered an isolated case and further preventive measures are planned.

#### ADDITIONAL INFORMATION

During the transient discussed in this report, the unit was placed in a stable, shutdown condition. At no time did conditions develop that may have posed a threat to the safety of the plant or a threat to the health and safety of the public.

There have been previous similar occurrences.

ATTACHMENT 1 TO 9006260355 PAGE 1 OF 1

WOLF CREEK  
NUCLEAR OPERATING CORPORATION

John A. Bailey  
Vice President Nuclear Operations

June 18, 1990

NO 90-0191

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Station P1-137  
Washington, D. C. 20555

Subject: Docket No. 50-482: Licensee Event Report 90-012-00

Gentlemen:

The attached Licensee Event Report (LER) is being submitted pursuant to 10 CFR 50.73 (a) (2) (iv) concerning an Engineered Safety Features actuation.

Very truly yours,

John A. Bailey  
Vice President  
Nuclear Operations

JAB/aem

Attachment

cc: R. D. Martin (NRC), w/a  
D. V. Pickett (NRC), w/a  
M. E. Skow (NRC), w/a

J. S. Wiebe (NRC), w/a

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